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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,581	06/27/2003	Tadashi Tsunoda	TOW-029	8412

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LAHIVE & COCKFIELD, LLP.  
28 STATE STREET  
BOSTON, MA 02109

EXAMINER
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CHUO, TONY SHENG HSIANG

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/608,581

Applicant(s)

TSUNODA, TADASHI

Examiner

Tony Chuo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/21/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The disclosure is objected to because of the following informalities: on page 12, line 7, "58" should be changed to "56". Appropriate correction is required.

### ***Double Patenting***

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-7 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 and 7-8 of copending

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Application No. 10/609100. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reason:

The copending application claims the following (Claims 1-4 and 7-8):

1. A fuel cell comprising a pair of separators and electrolyte electrode assemblies interposed between said separators. said electrolyte electrode assemblies each including an anode, a cathode, and an electrolyte interposed between said anode and cathode, wherein each of said separators includes a first plate and a second plate stacked together; a fuel gas channel for supplying a fuel gas to said anode. and an oxygen-containing gas channel for supplying an oxygen-containing gas to said cathode are formed between said first plate and said second plate; and said first plate has oxygen-containing gas inlets and said second plate has fuel gas inlets for supplying said oxygen-containing gas and said fuel gas to central regions of said electrolyte electrode assemblies.
2. A fuel cell stack according to claim 1, wherein a partition is formed between said first plate and said second plate for dividing said fuel gas channel and said oxygen-containing gas channel.
3. A fuel cell stack according to claim 2, wherein said partition includes a ridge protruding from said first plate to contact said second plate.
4. A fuel cell stack according to claim 2, wherein said partition includes a ridge protruding from said second plate to contact said first plate.
7. A fuel cell according to claim 1, wherein said first plate has first bosses and said second plate has second bosses; and said first bosses and said second bosses protrude toward each other for sandwiching said electrolyte electrode assemblies.
8. A fuel cell according to claim 7, wherein said first bosses and said second bosses are current collectors for collecting electric energy produced by chemical reaction of said fuel gas and said oxygen-containing gas supplied to opposite surfaces of electrolyte electrode assemblies.

The claims of the copending application no. 10/609100 fully encompass the subject matter claimed in the present application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 5 recites the limitation "said first bosses" and "said second bosses" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1 and 4 are rejected under 35 U.S.C. 102(a) as being anticipated by Lee et al (US 2003/0072989). Regarding claim 1, the Lee et al reference teaches a fuel cell comprising a pair of separators "3", electrolyte electrode assemblies between said separators "8" that includes an anode "9a" & "9b", a cathode "11a" & "11b", and electrolyte "10" (See Figure 1). In addition, the reference teaches a first area that is formed between separator "3" and another separator "3" on the other side of the electrolyte electrode assembly "8" (See Figure 1). It also teaches a separator "3" that includes a first plate "5a" & "5b" and second plate "7a" & "7b" stacked together to form a second area (See Figure 2). Further, it teaches a second area that is divided by a partition as represented by the center plate "6" into a fuel gas channel "13a", "13b", and "13c" and a oxygen-containing gas channel "12a", "12b", and "12c" (See Figure 2).

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Finally, it teaches a fuel gas channel that is connected to the anode by the fuel electrode mask plate "4b" and an oxygen gas channel that is connected to the cathode by the air electrode mask plate "4a" (See Figure 2 and paragraph 31 of specification). Regarding claim 4, it teaches fuel gas and oxygen-containing gas that are supplied through the fuel gas inlets "13a" and oxygen-containing gas inlets "12a" (paragraph 34 of specification).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 3, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 2003/0072989) in view of Doggwiler et al (EP 1075033). Regarding claims 2 and 3, the Lee reference is applied to claims 1 and 4 for the reasons stated above. However, the reference does not expressly teach the specific ridge-partition configuration. The Doggwiler reference does teach a fuel cell with a partition that includes ridges that protrude from one plate to the other plate (See Figure 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee fuel cell to include the ridge partition configuration so that both gases can efficiently flow throughout the separator. Regarding claim 7, the Lee reference is applied to claims 1 and 4 for the reasons stated above. However, the reference does not expressly teach first bosses that protrude

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toward electrode assembly by a large distance in comparison to second bosses. The Doggwiler reference does teach a fuel cell that has first bosses that protrude by a large distance in comparison to second bosses (See Figure 6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee fuel cell to include first bosses that protrude by a large distance in comparison to second bosses in order to prevent pressure loss of the oxygen-containing gas that is supplied at a higher flow rate.

11. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 2003/0072989) in view of Katz et al (US 4983472). The Lee reference is applied to claims 1 and 4 for the reasons stated above. However, the reference does not expressly teach first bosses and second bosses that are current collectors. The Katz reference teaches a fuel cell that has a current collector plate "22" located between an electrode "20" and a separator plate "25". The collector plate has a plurality of arches "26, 28" deformed from a single flat plate in a checkerboard pattern. Figure 3 shows the current collector in the boss configuration. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Lee fuel cell to include current collectors that are in the boss configuration in order to maintain better electrical contact with the electrolyte electrode assemblies.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 2005/0255365.

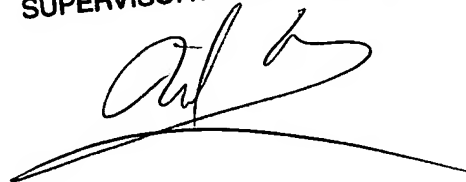
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571) 272-0717. The examiner can normally be reached on M-F, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

\*\*\* TC 12/7/05

MICHAEL BARR  
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Michael Barr', is written over a horizontal line.